

Taxonomic Notes on the Ants *Ponera leae* Forel and *Ponera norfolkensis* (Wheeler) (Hymenoptera—Formicidae)

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THE RECENT RECOGNITION by Wilson (1957) of several Pacific species groups within the ant genus *Ponera* has done much to clarify the relationships, both taxonomic and biogeographical, of various scarce species occurring in this area. The present note has been prepared in order to record the addition of two further species to Wilson's *Ponera tenuis* group: these are *P. leae* Forel of Tasmania, and *P. norfolkensis* (Wheeler) of Norfolk Island. The recognition of the true position of these species has resulted from studies directed towards the identification of specimens of *P. leae* collected several years ago at Paihia, New Zealand, by Dr. K. P. Lamb of the Plant Diseases Division, Auckland. Further notes on the biology of *P. leae* in New Zealand will be presented elsewhere; at present it is sufficient to point out that this ant has almost certainly been introduced into that country from Tasmania, or from some other part of Australia.

Since this work is largely additional to that of Wilson (*loc. cit.*) I have used his descriptions as a basis in preparing the measurements, indices, and terminology used below.

Ponera leae Forel

Ponera leae Forel, 1913, Bull. Soc. Vaud. Sci. Nat. 49: 173–196; p. 175, worker, original description.

TYPE LOCALITY: Tasmania.

The following measurements and notes are based upon the holotype worker in the Museum d'Histoire Naturelle, Geneva; and on two workers from Paihia, New Zealand, in the collection of the Plant Diseases Division, Auckland.

HOLOTYPE WORKER: HW 0.40 mm., HL 0.55 mm., SL 0.35 mm., CI 73, SI 87.5, PW 0.30 mm., PH 0.29 mm., petiolar node length 0.21 mm., dorsal petiole width 0.25 mm.

HOMOEOTYPE WORKERS: HW 0.40 mm., HL 0.55 mm., SL 0.34 mm., CI 73, SI 85, PW 0.30 mm., PH 0.29 mm., petiolar node length 0.21 mm., dorsal petiole width 0.25 mm.

Length 2.5 mm. Mandibles with three well-developed teeth occupying approximately the apical third of the masticatory border, and with an indeterminate number of minute denticles behind. Eyes minute, consisting of a single facet with a maximum diameter of about 0.01 mm. Antennal club massive, distinctly four jointed, considerably longer than the remainder of the funiculus. Petiolar node (Fig. 1) in side view massive, subrectangular, tapering slightly dorsally; seen from above its dorsal surface forming an almost complete half-circle, the posterior face flat to very feebly concave. Subpetiolar process somewhat reduced, with a large and distinct anterior fenestra. Other characters as described by Forel (1913).

Forel (1913) considered that eyes were not developed in this species, and Wheeler (1927) noted that pigment spots were present in some specimens, while others showed no sign of eyes. It is clear that Forel overlooked the eyes which I have shown to be present in his type of *leae*; and in view of the minute size of these it is probable that Wheeler was also in error in his interpretation of the material he examined. However, Wheeler's observation must stand, with reservation, until further material becomes available, as the specimens examined by him have apparently been lost, and so cannot be checked.

RELATIONSHIPS: This species is clearly very closely related to *P. caledonica* Wilson, but differs in the following characters:

(1) The eye of *leae* is somewhat smaller; with a maximum diameter of only about 0.01 mm., as compared with 0.02 to 0.03 mm. in *caledonica*.

(2) The lateral faces of the propodeum are much more densely shagreened, with extremely

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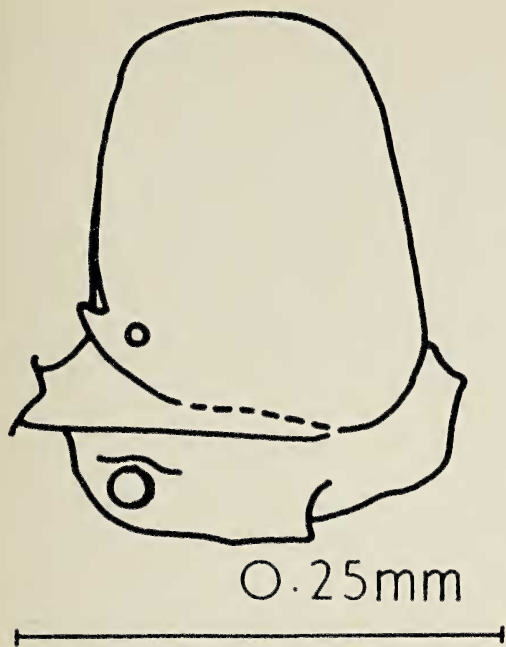


FIG. 1. *Ponera leae* Forel. Petiolar node in side view. Drawn from a specimen collected at Paihia, New Zealand.

fine longitudinal striae, than are those of *caledonica*; they appear as subopaque, whereas in *caledonica* they are moderately to strongly shining.

(3) The punctulation of the first and second gastric segments is somewhat more coarse, and close, than that of *caledonica*.

(4) The body colouration is darker than that of *caledonica*, medium reddish brown, as opposed to light reddish brown.

Ponera norfolkensis (Wheeler)

Ponera leae oculata Wheeler, 1927, Proc. Amer. Acad. Arts Sci. 62: 121-153; pp. 130-131, fig. 1, worker, queen, original description.

TYPE LOCALITY: Norfolk Island.

Ponera leae norfolkensis Wheeler, 1935, Occ. Pap. Bishop Mus. 11(11): 1-56; p. 13, new name for *oculata*, name preoccupied.

The following details have been supplied by Dr. Wilson; they are based upon two syntype workers in the Museum of Comparative Zoology, Harvard University.

(1) HW 0.43 mm.-0.44 mm., HL 0.56 mm.-0.57 mm., SL 0.36 mm., CI 76-77, SI 84-85, PW 0.35 mm., petiolar node length 0.20 mm., dorsal petiole width 0.29 mm. (PW, petiolar length, and petiolar width are based on one specimen only.)

(2) Size larger than that of either *leae* or *caledonica*.

(3) Eye developed as in *caledonica*.

(4) Propodeal sculpturing as in *leae*.

DISCUSSION: Within the *Ponera tenuis* species group Wilson (1957) recognized several subgroups. One of these, his *caledonica* subgroup, included *P. caledonica* of New Caledonia, and the east Australian *P. exedra* Wilson. The major features of this subgroup are the relatively large size, elongated head, thick petiolar node, and light colouration; characters which are shared also by *leae* and *norfolkensis*, discussed above. Accordingly the subgroup may be extended to include these two species, and by nomenclatural priority must now become known as the *Ponera leae* subgroup.

In addition, relationship between *leae*, *norfolkensis*, and *caledonica* is particularly marked. Indeed Wilson, who has checked one of my *leae* homoeotypes against the type series of *caledonica*, has noted (*in litt.*) that the characters of *leae* fall within the range of variation of *caledonica*, in such important characters as size, petiole shape, and head and scape proportions. Nevertheless the diagnostic features listed above seem to be characteristic. *P. norfolkensis* also seems to be a "good species," considering the characters listed above, and the differences between it and *leae* noted by Wheeler (1927).

Within the *P. leae* subgroup, therefore, *leae*, *norfolkensis*, and *caledonica* form a very closely related assemblage distinct from *P. exedra*. These three forms may best be considered as constituting a biological superspecies, with three apparently distinct allopatric species developed on New Caledonia, Norfolk Island, and Tasmania. Full specific recognition has been accorded these forms due to the apparently discontinuous nature of the variation in their diagnostic features, and the known facts regarding the often very subtle species differences in other, better represented, species of *Ponera*.

KEY TO THE *Ponera leae* SUPERSPECIES

In the key to the species of the *tenuis* group presented by Wilson (1957) all three of these species key out to *caledonica*; they may be differentiated as follows:

1. Slightly larger species, HW 0.42 mm. to 0.44 mm. (Norfolk Island).....**norfolkensis**
Slightly smaller species, HW 0.38 mm. to 0.40 mm.2
2. Eye diameter 0.02 mm. to 0.03 mm.; colour medium reddish brown; lateral faces of propodeum feebly to strongly shining (New Caledonia)**caledonica**
Eye diameter about 0.01 mm.; colour dark reddish brown; lateral faces of propodeum densely shagreened and subopaque (Tasmania and New Zealand).....**leae**

ACKNOWLEDGMENTS

Insofar as *P. leae* and *P. norfolkensis* are very poorly represented in collections, a number of Australian entomologists have given assistance in attempting to locate specimens for the author. I wish to extend my thanks to them, particularly to Father J. J. McAreavey of Melbourne, Mr.

N. M. Hudson of Hobart, and Dr. E. T. Giles, late of the Museum of South Australia, Adelaide.

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